

REMARKS

The Applicant appreciates the Examiner's consideration of the previous amendments.

Drawings correcting informalities is enclosed herewith. The corrected drawings are also being forwarded under separate cover to the official draftsman.

CLYNE

The Examiner rejected claims 1-3, 5-9, 19-21, 23-27, 37-40, 42-49, 51-54 under 35 U.S.C. 102(e) as being anticipated by Clyne, U.S. Patent No. 6,071,009.

The Examiner suggests that Clyne discloses a fiber optic probe (figure 3, reference 44) that includes a probe body having a tip (reference 72) for selectively approaching a device under test; an elongate optical fiber (reference 22) extending longitudinally along the body and extending beyond the tip (reference 42); and the probe body being sized such that substantially all of the elongate optical fiber is maintained free from freely moving with respect to the probe body (references 22 and 42 can not move laterally within references 58, 60, 62, and 64).

More accurately, Clyne discloses a sensor mount (reference 44) that includes a body having an arm-to-sensor tip distance (reference 72). An elongate optical fiber (22) extends longitudinally along the body (references 58, 60, 62, and 64) of the sensor mount (reference 44). An optic temperature sensor (reference 42) with attached fiber-optic lead (reference 22) is mounted in a sensor mount (reference 44), and the sensor mount is, in turn, placed in the channel (reference 38). The sensor (reference 42) has a sensor tip (reference 46). An optical signal from the thermometer controller is conducted by the optic lead (reference 22) to the sensor tip (reference 46), and conducts the resulting fluorescence in the reverse direction to the thermometer controller for calculation of a temperature. The optic sensor has a sensing temp (reference 46) which may comprise a phosphorescent material which, following activation by a pulse of light radiation, emits fluorescent light at a decaying rate dependent upon temperature.

As discussed above, Clyne discloses a system for temperature measurement for wire bonding machines. Accordingly, the fiber-optic lead (reference 22) terminates within the sensor mount (reference 44), to which is attached an optic temperature sensor (reference 42) with a sensing tip (reference 46) that extends beyond the sensor mount (reference 44).

Claims 1, 19, 37, and 46 patentably distinguish over Clyne by claiming an elongate optical fiber extending longitudinally along the body and extending beyond the tip of the probe body. The optical fiber of Clyne, in contrast, terminates within the body. Moreover, there would be no motivation to modify Clyne because it teaches a sensor mount for wire bonding machines where the sensor mount “mounts” the optic temperature sensor (reference 42) therein.

Claims 2, 3, 5-9, 20-21, 23-27, 38-40, 42, 25, 47-49, and 51-54 depend, either directly or indirectly, from their respective independent claim and are patentable for the same reasons asserted for the respective independent claim.

RUMBAUGH

The Examiner rejected claims 10, 13, 14, 16-18, 2, 30, 32, 34-36, 59, 61, 63, 64, 66-68, 70, 72, 73, 75, and 76 under 35 Section 102(b) as being anticipated by Rumbaugh, U.S. Patent No. 5,101,453.

Rumbaugh discloses a fiber optic wafer probe 10 that includes a probe body along which an optical fiber 16 extends to protrude from the tip of the probe body. The probe body loosely guides the optical fiber 16 so that at least a significant portion of the length of the optical fiber is movable longitudinally with respect to the tip 12 and probe body 10. The purpose of the movability of the optical fiber is to enable the optical fiber to buckle longitudinally in response to longitudinal over-travel of the fiber 16 toward the test device. After repeated use, the optical fiber is replaced by a new optical fiber and connector. Unfortunately, replacement of the optical fiber insert is both expensive and time consuming. Further, the angle of incidence provided by the optical probe may be unsuitable for a particular probe station or probing requirements.

Moreover, the bulky nature of the optical probe makes it unsuitable for environments with limited available space.

The Examiner did not find the applicant's previous amendment persuasive with respect to claims 10-18 and 72. In particular, the Examiner suggests that the cross sectional area immediately surrounding the optical fiber at the tip of the probe (reference 12) is smaller than the opposing end of the probe, which is apparently the reference 16b shown in FIG. 5 of Rumbaugh. In particular, the Examiner suggests that the cross sectional area immediately surrounding the optical fiber at an intermediate portion (reference 22) is smaller than the opposing end of the probe (reference 16b). However, the applicant would respectfully suggest that the cross sectional area immediately surrounding the intermediate portion (reference 22) is the same as the tip portion (reference 12).

Claim 10 has been amended to patentably distinguish over Rumbaugh by claiming the first cross sectional area is less than the third cross sectional area, and the third cross sectional area is less than the second cross sectional area.

Claims 11-18 and 72 depend from claim 10, either directly or indirectly, and are patentable for the same reasons asserted for claim 10.

The Examiner did not find the applicant's previous amendment persuasive with respect to claims 28-36 and 80. The Examiner considers Rumbaugh to teach the fiber contracting when contact force is applied and extending when contact force is removed.

Claim 28 has been further amended to patentably distinguish over Rumbaugh by claiming that the length of the elongate optical fiber extending longitudinally along the body and beyond the tip is modified when the optical fiber is longitudinally adjustable. Rumbaugh fails to teach modifying the length of the elongate optical fiber.

Claims 29-36 and 80, depend from claim 28, either directly or indirectly, and are patentable for the same reasons asserted for claim 28.

The Examiner did not find the applicant's previous amendment persuasive with respect to claims 59-67 and 85.

The Examiner considers the portion of the probe of Rumbaugh from reference 36 to reference 10 in Figure 1 to be a major portion of the probe and has a substantially constant vertical profile. The Examiner notes that the probe at reference 32 clearly does not have a constant vertical profile.

Claim 59 has been amended to patentably distinguish over Rumbaugh by claiming substantially all of the probe body having a substantially constant vertical profile. As noted by the Examiner, the probe at reference 32 does not have a constant vertical profile.

Claims 60-67 and 85 depend from claim 59, either directly or indirectly, and are patentable for the same reasons as asserted for claim 59.

The Examiner did not find the applicant's previous amendment persuasive with respect to claims 68-76 and 86.


The Examiner considers the portion of the probe from reference 12 to reference 22 in Figure 5 as a major portion and closely (near in space) surrounds the fiber. The applicant would note that the fiber from reference 12 to reference 22 is only near in space to various portions of the cavity. For example, at reference 12 the cavity is close in space to the upper portion of the fiber, and at reference 22 is close in space to the lower portion of the fiber.

Claim 68 has been amended to patentably distinguish over Rumbaugh by claiming the cavity closely surrounds the elongate optical fiber around the entire periphery of the fiber.

Claims 69-76 and 86 dependent from claim 68, either directly or indirectly, and are patentable for the same reasons asserted for claim 68.

The Examiner is respectfully requested to reconsider the claims and to pass the application to issue.

Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail postage prepaid in an envelope addressed to: Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on February 17, 2004.

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